



**Date:** November 9, 2015

**To:** Mayor and Members of the City Council

**From:** Patrick H. West, City Manager *T.H.W.*

**Subject:** Current and Planned Actions Related to Climate Change and Sea Level Rise

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The dual issues of climate change and sea level rise are threats that Long Beach takes very seriously. Looked at holistically, climate change and sea level rise, and the mitigation and adaptation strategies to counter them have been grouped under the umbrella of Sustainability. In that vein, Long Beach was one of the first cities to create a Sustainable City Commission (2007), organize an Office of Sustainability (2008), adopt a Sustainable City Action Plan (2010) and, as a result, has been in the process of incorporating sustainability into all of our major policy goals to build the resilience to ensure Long Beach still thrives in 100 years and beyond. The next steps in our effort to be a sustainable city are to continue work on climate change analysis and adaptation measures, and an analysis of predicted sea level rise and a change to our local coastal development plan to prepare for those potential impacts. This is a process that is complex, long-term, and has ramifications on the City's land use patterns, operations, and daily lives of our residents. The following information explains the City's approach to climate change and sea level rise and the steps envisioned over the next several years.

**Sustainable City Action Plan: The first step of a long journey**

Soon after the formation of the Sustainable City Commission and the Office of Sustainability, work commenced on Long Beach's first Sustainable City Action Plan (SCAP). Intended as the initial roadmap for Long Beach's path towards becoming a sustainable city, the SCAP set out a variety of metrics and goals to track progress through the year 2020, and a series of specific actions to pursue. The SCAP is organized around seven sustainability focus areas: Buildings & Neighborhoods; Energy; Green Economy & Lifestyle; Transportation; Urban Nature; Waste Reduction; and Water. One of the focus areas, Energy, contains climate change related initiatives and deals with the gradual reduction of Green House Gas (GHG) emissions from both municipal and community sources. However, the SCAP is not the final word on achieving these goals. Rather, it is the first step of a comprehensive effort to incorporate sustainable city principles into all new or updated plans and strategies until it is truly interwoven into the City's policy DNA and, ultimately, manifested in its physical build-out and social culture. One of the first and most important opportunities to implement this policy evolution is the incorporation of sustainability principles into the latest updates of the City's General Plan, specifically the Mobility, Land Use and Urban Design Elements.

### **General Plan Land Use Element Update: Creating the building blocks of a Sustainable City**

Development Services is in the final months of a multi-year process for updating the City's General Plan Land Use Element. This required element of the City's General Plan provides the policy framework for land-use within the city, establishes heights and development regulations, as well as broad policies and objectives. It seeks to improve the physical environment of the city through interrelated land use goals, such as improving livability and the environment, promoting sustainable development, improving mobility and connectivity, and supporting continuous economic development, as well as providing housing opportunities for all residents.

The draft Land Use Element has been reviewed by the Planning Commission in various study sessions and is currently undergoing environmental review. It is anticipated that the Land Use Element will come to Council for approval in mid to late 2016. The approved Land Use Element is the basis upon which to begin work on a Climate Action Plan, as it provides the vision for future growth and development in Long Beach. The updated Land Use Element will be the basis upon which the City's future land use and development patterns can be modeled to provide reliable projections of future environmental effects related to greenhouse gas analysis and preparation of a Climate Action Plan.

### **Climate Action & Adaptation Plan: Preparing to Weather the Worst**

A sustainable city should also be a resilient city; one that is well adapted to endure and quickly bounce back and resume normal operations after shocks to systems resulting from catastrophic events. While the City's current Sustainable City Action Plan is a good start, it does not provide the rigor that is required under current State mandates for more robust Climate Action Plans. The City is obligated under AB 32 (The California Global Warming Solutions Act of 2006), SB 375 (The Sustainable Communities and Climate Protection Act of 2008), and various California Executive Orders to reduce greenhouse gas emissions. Generally, the statewide targets relate to reducing emissions to 1990 levels by 2020, and 80% below 1990 levels by 2050. While not explicitly required by law, a Climate Action Plan (CAP) is the primary tool used by local government in California to achieve their goals and obligations for greenhouse gas (GHG) reductions. In short, a CAP must include the following components:

- 1) Baseline inventories of greenhouse gas emissions
  - Municipal Inventory – Emissions from City facilities/operations
  - Community Inventory - Emissions from private sector operations
- 2) Reduction Targets – Numerical targets that meet or exceed State standards
- 3) Reduction Strategies – Initiatives and programs to achieve reduction targets
- 4) Implementation Plan – Specific local actions/monitoring efforts to assure that reduction targets are achieved.

The first step in creating a CAP is estimating an accurate baseline for emissions, which is highly dependent upon the land use patterns being established under the draft Land Use Element. This involves compiling energy and emissions data for both municipal and community inventories, including water movement and usage, vehicle miles traveled, industrial activity, activity level at ports, airports, rail and other heavy infrastructure, as well as calculating sinks such as urban forest absorption of carbon dioxide. The calculation of the baseline is a highly technical and critical step, as it will be used by the City to measure all future progress against.

Once baseline inventories have been established, cities are able to design programs to reduce GHG emissions through improved energy efficiency, promotion of non-motorized transportation, facilitation of the installation of alternative energy systems and the promotion of technology advancement in industry and transportation. These programs must all be modeled to forecast their effectiveness in reducing GHG emissions and, subsequently, the City Council will select a preferred alternative for implementation. Once a plan is adopted, annual monitoring is required. The cities of Santa Monica, Riverside, Oakland and Sacramento serve as recent examples of effective Climate Action Plans.

The entire process of completing a CAP, from inventory to adoption of the final implementation plan, can vary in length from a minimum of one year to several years, depending on the level of public involvement and complexity of the proposed programs. The total cost (including CEQA review) for preparing a CAP for a city the size of Long Beach can range from \$250,000 up to \$500,000. While some cities have obtained a limited amount of funding from Metropolitan Planning Organizations, such as the Southern California Association of Governments (SCAG), as well as other grant funds, the funding landscape has recently retreated from funding CAPs and, instead, focused on funding the programs that are the output of the planning effort. Staff will, however continue to pursue any and all available grants and funding to offset the cost of preparing a CAP.

Planning for climate change is a complex and highly technical endeavor that is constantly evolving with new data, new methods, and best practices. To do it right, the City needs to work with a qualified consultant that can assist City staff to deliver a Climate Action and Adaptation Plan that is state of the art, and make Long Beach a model city for climate resiliency. Upon completion of the General Plan Land Use Element, the next steps to create a CAP will be develop and release a request for proposals (RFP) for a consultant team to assist with the preparation of the plan and associated CEQA document. Staff has set a goal of releasing this RFP by March 2016.

**Sea Level Rise Planning: Armoring the Coast, Managed Retreat, or other Adaptation Strategies?**

One facet of climate change that affects coastal cities like Long Beach is the threat of sea level rise.

Pursuant to Assembly Bill 691 that was signed by the Governor on October 5, 2013, the City is required to prepare and submit to the State Lands Commission an assessment of how it proposes to address sea level rise by July 1, 2019. The purpose of this law is to ensure that a local trustee of Tidelands areas takes reasonable steps to protect granted public trust lands from sea level rise. The State Lands Commission has not yet released specific guidance on this legal mandate, but they are expected to. For now, the City is focused on gaining a better understanding of expected sea level rise impacts throughout the City of Long Beach, and collaborating with our local and regional partners while we develop potential strategies and options to deal with those impacts.

City staff has been working closely with Dr. Juliette Hart on the sea level rise issue. Dr. Hart is a Marine & Climate Science Specialist at the University of Southern California's Sea Grant Office. Dr. Hart manages the AdaptLA Regional Initiative, which is focused on understanding the impacts of climate change, with a primary focus on sea level rise, and how they can inform regional planning policies using the best available scientific tools, while coordinating with local governments and other public agencies. The AdaptLA Regional Initiative is funded by multiple public agencies, including the State Coastal Conservancy, California Coastal Commission, and the California Ocean Protection Council. The City of Long Beach has been involved with this important regional initiative for the past few years and has increased its involvement as an active partner and contributor.

One of the Regional AdaptLA priorities has been to help coordinate the development of a Coastal Storm Modeling System (CoSMoS) for Southern California that will shed light on the impacts of sea level rise, which will include the City of Long Beach. CoSMoS is being developed by the United States Geological Survey (USGS). CoSMoS will be supplemented with a comprehensive shoreline change and coastal erosion model for the Los Angeles Region that is being developed by three reputable coastal engineering consulting teams (ESA, PWA, TerraCosta Consulting Group). The CoSMoS is expected to be completed by Summer 2016, and will serve as a powerful tool to help communities perform vulnerability assessments and begin planning for sea level rise over the long-term. City staff is in close contact with Dr. Patrick Barnard at USGS, who is leading the team in developing the CoSMoS model. Dr. Barnard is a coastal geologist with the USGS Pacific Coastal and Marine Science Center who will be meeting with City staff to review some of the CoSMoS preliminary results, which will help the City as it prepares to assess sea level rise vulnerabilities and adaptation options.



While the CoSMoS data will play a critical role in helping the City prepare for sea level rise, additional modeling will be needed to better account for expected sea level rise impacts in the City's enclosed bays (i.e. Alamitos Bay). Fortunately, the City has been working closely with Moffatt & Nichol since 2007 on the development of a Hydrodynamic Model for Alamitos Bay. The data from the CoSMoS, when fully released, will be able to be easily integrated into this Alamitos Bay Hydrodynamic Model that will provide more accurate projections of sea level rise impacts. The Alamitos Bay Hydrodynamic Model has been used to evaluate water quality impacts of Power Plants in Alamitos Bay, anticipated sea level rise impacts in the SEADIP planning areas, anticipated sea level rise impacts at the Los Cerritos Wetlands, and other efforts. The Alamitos Hydrodynamic Model and CoSMoS, together, will provide critical details for the City that will allow the preparation of a comprehensive Vulnerability Assessment and Adaptation Strategies Study.

The City is seeking grant funds this upcoming year to be ready to perform its Vulnerability Assessment and Adaptation Strategies Study. Upon obtaining grant funding, a consultant team will be engaged to prepare the study. The cost of this vulnerability assessment, and necessary public outreach, is expected to cost approximately \$250,000, which will include several public outreach activities. Once the City's Vulnerability Assessment and Adaptation Strategies Study is completed, the City will be ready to update its Local Coastal Program (LCP). The City's LCP is an Element of the General Plan that was originally adopted by the City Council on February 12, 1980, and certified by the California Coastal Commission on July 22, 1980. LCPs are used to guide development in the coastal zone and obtain the ground rules for future development and protection of coastal resources. LCPs must be in conformance with the goals and policies of the California Coastal Act. The City's LCP is due for an update, and staff's target to begin the LCP Update process is December 2017 after the Vulnerability Assessment and Adaptation Strategies Study is completed. The Coastal Commission's recently adopted (August 12, 2015) Sea Level Rise Policy Guidance Document for Addressing Sea Level Rise in Local Coastal Programs and Coastal Development Permits will help guide the process.

In addition, the Port of Long Beach is in the process of completing the preparation of a Climate Adaptation and Coastal Resiliency Strategic Plan (CRS Plan). The CRS Plan will serve as the Port's guidance document for its climate change preparedness efforts. The CRS Plan will enable the Port to prepare for climate change and other coastal hazards by increasing the resilience of Port infrastructure and operations. The primary objective of the CRS Plan is to ensure the continuity of Port operations given expected changes in climate. The CRS Plan will provide a process for incorporating planning for climate change into Port policy-making, planning, environmental documents, infrastructure design, construction practices, and Port community outreach and education efforts. The Port expects to complete the CRS Plan within the next few months. City and Port staff are collaborating on this effort and will use lessons learned from that Port's efforts to help guide its Vulnerability Assessment.

**Collaboration with Local Institutions: Leveraging the expertise and connections of our Aquarium**

In January 2015, Mayor Garcia announced a plan to partner with the Aquarium of the Pacific to initiate climate resiliency planning. Since then, the Aquarium has been working with experts from CSULB, UCLA, POLB, JPL, NOAA, and others to identify what aspects of climate change pose the greatest threats to Long Beach, and what areas of the city and which segments of the population are most vulnerable to these threats. The project focuses on adaptation to climate change, not mitigation, with an emphasis on the impacts of sea level rise, heat spells, drought, flooding, and air pollution. The report is expected to be released by the end of 2015 and will be presented to City Council. Based upon this analysis, the City will translate the findings into specific strategies and incorporate them into its upcoming Climate Adaptation & Adaptation Plan.

**The Compact of Mayors: International recognition for our efforts**

Through the initiative of Mayor Garcia, Long Beach will be participating in an international Climate Action and Adaptation reporting effort known as the Compact of Mayors. The Compact of Mayors offers cities the opportunity to be recognized as leaders in local climate action through a standardized reporting process. This process addresses both mitigation efforts to reduce GHG emissions and adaptation efforts to prepare for anticipated climate related impacts. Compliance with the Compact of Mayors starts with an inventory of community-wide GHG emissions in year one, and is complete with the adoption of both a Climate Action Plan and a Climate Adaptation/Resiliency Plan within three years. City staff is preparing for a series of actions that will lead to compliance with the Compact of Mayors goals within the three-year time frame.

**Climate Action Capacity Building with CivicSpark**

The Office of Sustainability will be hosting a CivicSpark Fellow for 650 hours starting in November 2015. CivicSpark is a program of the Local Government Commission and AmeriCorps designed specifically to assist cities with climate action activities. The Fellow will support City staff by researching best practices of other cities that have already completed Climate Action and Adaptation plans. This research will lead to the development of a Request for Proposals (RFP) to seek a qualified consultant to complete the work once the draft Land Use Element is released for public review in early 2016.

**Conclusion: Long Beach in 2020, a model Sustainable and Resilient City**

All of the efforts outlined above should be realized by 2020. Through engaging in the process of updating the General Plan and the creation of a new Climate Action and Adaptation Plan, Long Beach will be much better equipped to deal with the challenges of a changing environment.

For further information please contact Tom Modica, Assistant City Manager, at 570-5091.

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Cc: Charles Parkin, City Attorney  
Laura Doud, City Auditor  
Jon Slangerup, Chief Executive Officer, Port of Long Beach  
Tom Modica, Assistant City Manager  
Arturo Sanchez, Deputy City Manager  
Amy Bodek, Director of Development Services  
Stephen Scott, Interim Director of Parks, Recreation & Marine  
Jyl Marden, Assistant to the City Manager  
Eric Lopez, Tidelands Development Officer  
Larry Rich, Sustainability Coordinator

